WHAT IS CLAIMED IS:

1. A heat transport device comprising:

a container having a hollow structure in which a fluid channel is formed, both ends of the fluid channel being closed to prevent intrusion of external air, and a liquid and gas being sealed in the fluid channel;

at least one each thermal-receiver-type heat exchanger and thermal-radiator-type heat exchanger arranged on an outer wall of the container along the fluid channel; and

driving heat exchangers provided at both terminal portions of the container for causing the liquid to oscillate along the fluid channel.

2. The heat transport device according to claim 1, wherein at least one of the terminal portions of the container where the driving heat exchangers are provided has an internal corner in cross section.

3. The heat transport device according to claim 1, wherein the terminal portions of the container have a larger cross-sectional area than the other portion of the container.

4. The heat transport device according to claim 1, wherein each of the driving heat exchangers includes a

heating unit and a cooling unit.

5. The heat transport device according to claim 1, wherein the internal volume of each terminal portion of the container where the driving heat exchanger is provided is equal to or larger than the internal volume of that portion of the container which is bounded by the center of the thermal-receiver-type heat exchanger and the center of the thermal-radiator-type heat exchanger.

6. The heat transport device according to claim 1, wherein the liquid is a combination of a low-boiling liquid and a high-boiling liquid which do not mix with each other, and wherein the low-boiling liquid is sealed in the terminal portion of the container and the high-boiling liquid is sealed in the other portion of the container.

7. The heat transport device according to claim 1, wherein each terminal portion of the container where the driving heat exchanger is provided forms a double pipe structure.

8. The heat transport device according to claim 1, wherein a pore which produces a capillary action is

provided inside at least one of the terminal portions of the container where the driving heat exchangers are provided.

9. The heat transport device according to claim 1, wherein a recess serving as a nucleus for bubble formation is provided in at least one of the terminal portions of the container where the driving heat exchangers are provided.

10. The heat transport device according to claim 1, wherein the fluid channel in which the liquid flows is a meandering fluid channel.

11. The heat transport device according to claim 10, wherein adjacent portions of the meandering fluid channel are a separated by a single wall.

12. The heat transport device according to claim 11, wherein a bypass hole which allows the liquid to pass through is formed in the wall between the adjacent portions of the meandering fluid channel.

13. The heat transport device according to claim 12, wherein the thermal-receiver-type heat exchanger and/or

the thermal-radiator-type heat exchanger is provided on a portion of the outer wall of the container where the bypass hole is provided.

14. The heat transport device according to claim 10, wherein the driving heat exchangers are formed of a Peltier element, and wherein the terminal portions of the container are joined to each other via the Peltier element.

15. The heat transport device according to claim 1, wherein the container has a portion formed of a flexible material.

16. The heat transport device according to claim 1, wherein the liquid is caused to oscillate in directions along the fluid channel by heating and cooling operation of the driving heat exchangers, said heat transport device further comprising a controller for controllably switching the driving heat exchangers between heating and cooling cycles based on temperatures of the driving heat exchangers detected by the controller.

17. The heat transport device according to claim 1 comprising multiple containers provided adjacent to each

other, wherein the driving heat exchangers are switched between heating and cooling cycles with different timings.

18. A semiconductor apparatus comprising:

a semiconductor device having a heat-generating portion; and

a heat transport device which comprises:

a container having a hollow structure in which a fluid channel is formed, both ends of the fluid channel being closed to prevent intrusion of external air, and a liquid and gas being sealed in the fluid channel;

at least one each thermal-receiver-type heat exchanger and thermal-radiator-type heat exchanger arranged on an outer wall of the container along the fluid channel; and

driving heat exchangers provided at both terminal portions of the container for causing the liquid to oscillate along the fluid channel;

wherein the thermal-receiver-type heat exchanger is located immediately adjacent to the heat-generating portion which generates heat when said semiconductor device is in operation.

19. An extra-atmospheric mobile unit comprising:

a heat-generating portion; and

a heat transport device which comprises:

a container having a hollow structure in which a fluid channel is formed, both ends of the fluid channel being closed to prevent intrusion of external air, and a liquid and gas being sealed in the fluid channel;

at least one each thermal-receiver-type heat exchanger and thermal-radiator-type heat exchanger arranged on an outer wall of the container along the fluid channel; and

driving heat exchangers provided at both terminal portions of the container for causing the liquid to oscillate along the fluid channel;

wherein the thermal-receiver-type heat exchanger is located immediately adjacent to the heat-generating portion which generates heat when said extra-atmospheric mobile unit is in operation.